Meeting Summary
ENERGY STAR® Set-top Box Working Meeting
EIA/CEA Spring Conference – Washington, DC
March 14, 2000

Meeting Objectives:

Through both an EPA slide presentation and a discussion session, this meeting allowed EPA and industry representatives to discuss industry feedback on the EPA ENERGY STAR Set-top Box Program Draft Specification (Version 2.0). The meeting also provided an opportunity for EPA and industry to discuss the next steps in finalizing a specification and launching the Program. During the meeting, EPA also shared recent news of ENERGY STAR promotions and activities.

Meeting Outcome:

In working towards finalizing the specification by Spring/Summer 2000, EPA will review and evaluate new industry comments, revise the specification as appropriate (including the development of a Tier 2 specification), and circulate the revised specification to all interested parties. EPA will carefully consider industry's requests to modify the energy-efficiency specifications to include LNBs and to achieve parity in Categories 2 and 3 with the upcoming ENERGY STAR Computer specification.

Set-top box manufacturers and other industry representatives are encouraged to submit comments, or alternative specification proposals, and suggestions for launch venues to EPA for consideration. As noted in the below meeting highlights, EIA/CEA will provide EPA with a list of upcoming trade shows as potential launch sites.

Meeting Highlights:

Welcome- Craig Hershberg, EPA

Mr. Hershberg welcomed the group of over 20 industry representatives to the meeting.

Introductions- Introductions by those in attendance.

Meeting Attendees:
1) Ann Bailey, EPA
2) Lisa Berarducci, ICF Consulting (Contractor to EPA)
3) Todd Brady, Intel Corporation
4) Steve Bristow, Independent Consultant
5) Bill Check, National Cable Television Association (NCTA)
6) Robin Clark, ICF Consulting (Contractor to EPA)
7) Holly Evans, EIA
8) Andrew Fanara, US EPA
9) Patricia Franco, Philips
10) Craig Hershberg, US EPA
11) Val Jurka, Lucent

12) David Kline, JVC
13) Peter Knight, Thomson Consumer Electronics
14) Doug Lowell, Sun Microsystems
15) Doug Luehrs, Scientific-Atlanta
16) Amanda Monchamp, EIA
17) Chuck Merk, Silicon Wave- via teleconference
18) Marc Mueller, Toshiba
19) Wayne Myrick, Sharp
20) Joe Peck, CEA
21) Julio Rovi, The Cadmus Group (Contractor to EPA)
22) Donna Sadowy, Advanced Micro Devices (AMD)
23) Marla Sanchez, US EPA
24) Rachel Schmeltz, US EPA
25) Mark Sharp, Matsushita
26) Butch Teglas, Philips
27) David Traver, Sony
28-30) 3 Zenith representatives- via teleconference

NOTE: For the purposes of continuing today's dialogue, e-mail addresses for the above attendees may be obtained by contacting Craig Hershberg, EPA, at (202) 564-1251.

ENERGY STAR Presentation- Craig Hershberg, EPA

Mr. Hershberg presented the key changes contained in Version 2.0, responded to EIA/CEA's comments on Version 1.0, and provided an overview of recent ENERGY STAR promotional activities.

To obtain an electronic copy of the presentation, please send an e-mail request to Lisa Berarducci at lberarducci@icfconsulting.com.

Discussion- The purpose of the discussion session was to solicit feedback from industry representatives on EPA's Version 2.0 of the Draft Specification. Craig Hershberg, EPA, initiated and moderated the discussion.

Product Scope:

Issue: Should EPA continue to include analog boxes in the Program?

Industry Response: Industry representatives indicated that they prefer not to include analog cable boxes in the Program. To EPA's question about the demand internationally for analog set-top boxes, industry countered that the label might be jeopardized by associating itself with a very basic product.

EPA Response: EPA indicated that it prefers not to purposely exclude products from the Program and would like to draft a specification that is more general and flexible rather than too specific and limiting.

Issue: Craig Hershberg, EPA, asked whether wireless set-top boxes, including those with LMDS and MMDS, should be included in the specification and if anyone would object to their inclusion.

Industry Response: David Kline, JVC, responded that wireless set-top boxes would fit well into the wide-ranging functionality set covered by the specification.

Operational Modes:

Issue: David Traver, Sony, inquired about the note on Slide 14 that indicates that "turning off the displays" in Standby/Low-power mode "is not enough" to yield adequate energy savings. Specifically, Mr. Traver wondered whether the "displays" included video output or a power indicator?

EPA Response: Craig Hershberg clarified that in this context "displays" meant a power indicator display.

Product Category 1 Specification:

Issue: Does the 3-Watt energy-efficiency guideline provide sufficient incentive to incorporate energy efficiency into the set-top box design process? Should the specification be reduced to a 1-Watt specification?

Industry Response: Overall, industry preferred the 3-Watt specification and noted that, while some products may be able to meet the 3-Watt level, others will not without significant redesign.

Doug Luehrs, Scientific-Atlanta, expressed concern that some Category 1 set-top boxes are still receiving and processing data in standby/low-power mode and will likely consume more than 3 Watts.

Joe Peck, CEA, and Bill Check, NCTA, concurred that there are some manufacturers who would not be able to meet the 3-Watt Category 1 specification.

David Traver, Sony, advocated maintaining the 3-Watt specification because it is analogous to the current ENERGY STAR criteria for TV standby power consumption.

Product Category 2 & 3 Specifications:

EPA requested feedback from industry representatives regarding the energy-efficiency specification for digital cable boxes, DBS systems, personal video recorders, and multimedia devices with hard drive functionality.

Issue: Should the LNB be excluded from energy consumption calculations?

Industry Response: Industry responded overwhelmingly in favor of including the LNB in any energy consumption calculations.

Peter Knight, Thomson, emphasized that the ENERGY STAR Home Electronics Program focuses on saving energy consumed while a device's power appears "OFF" to the user. He stated that, as the LNB is still active when a DBS system is not in use, energy consumption by the LNB should be reflected in the specification.

David Kline, JVC, agreed. Mr. Kline stated that the LNB is an intimate part of the whole system and the specification should be set based on a measurement of this whole.

David Traver, Sony, mentioned that DBS systems may have dual, or even multiple, LNBs. Mr. Traver commented that the set-top box portion of the system is useless without the LNB. Thus, LNBs are indeed a part of the system and should be considered in the specification. Mr. Traver also emphasized that engineers are now beginning to think about outsourcing the LNB power source to wall packs. Mr. Traver suggested that set-top box energy savings could eventually be compromised by a specification that excludes the LNB(s).

Issue: Craig Hershberg inquired whether it's technically possible to "turn off" the LNB at certain times?

Industry Response: Overall, industry responded that shutting off the LNB would disrupt service and remove the incentive for designing energy-efficient set-top boxes.

David Traver, Sony, indicated that the LNB could only be "turned off" if the box were shut down or unplugged.

Peter Knight, Thomson, added that this would disrupt service.

David Kline, JVC, advised that keeping the LNB in the energy-efficiency specification would preserve an incentive for increasing set-top box energy-efficiency.

Issue: Andrew Fanara, EPA, asked about the performance and production of LNBs.

Industry Response: David Traver, Sony, responded that LNBs are tightly tuned, usually to within the microWatts of their design. He suggested it might be possible that some LNBs are more efficient than other LNBs. Several manufacturers indicated that they do not make their own LNBs but purchase them from others.

Note: Julio Rovi, The Cadmus Group, and Steve Bristow, an independent consultant to EPA, noted that Version 1.0 of the specification included LNBs in the energy-efficiency criteria. However, in Version 2.0, EPA excluded LNBs from the criteria based on suggestions from some industry representatives and with the intent of leveling the playing field for digital cable boxes and DBS systems.

Issue: For Category 3, EPA stated that it intends to revise the initial description of "multimedia devices with hard drive functionality" to read "multimedia devices with hard drive video recording functionality." EPA asked industry to provide feedback on this proposed clarification.

Industry Response: Industry did not object to this clarification. David Traver, Sony, confirmed with EPA that "video recording" refers to streaming video as opposed to video images or "snapshots" (e.g., saved Web pages).

EPA Response: EPA not only confirmed David Traver's statement but also emphasized that Internet access devices with hard drives used only to capture Web pages or save e-mails are included in Category 1.

Issue: Industry requested that EPA address the increasing similarities between PCs and personal video recorders (PVRs) or multimedia devices with hard drive video recording functionality.

Joe Peck, CEA, emphasized that EPA should consider developing a set-top box specification on par with the 15-Watt specification for ENERGY STAR Computers.

Wayne Myrick, Sharp, voiced concern that PVRs record constantly and therefore no opportunities exist for the hard drive to spin down. There was disagreement among attendees as to whether or how often PVR hard drives might spin down.

Dave Traver, Sony, stating that there should be a benchmark for the same technologies, echoed support for a common 15-Watt specification for set-top boxes and PCs. David posited that in the future, PCs with tuners and video recording functionality could be developed. In response to EPA's emphasis on developing a challenging but practical specification that may require redesign, David stated that a 15-Watt specification for all Category 2 & 3 products would still present a reasonable challenge with redesign. Further, he suggested that, with power demands for network connectivity, it might be difficult for Category 2 products to achieve the desired level of energy efficiency.

Issue: Bill Check, NCTA, asked EPA what functionality it expects qualifying digital cable boxes (i.e., 8 Watts or less in standby/low-power mode) to have.

EPA Response: Craig Hershberg, EPA, emphasized that the set-top box program will focus on standby/low-power mode and should not affect a product's active mode performance or functionality.

Bill Check, NCTA, voiced set-top box industry concerns that functionality in the standby/low-power mode (i.e., when the product is "OFF" to the user) will continue to increase in the future.

Peter Knight, Thomson, agreed and expressed concern that adding additional circuits for increased functionality could foreseeably push once-compliant products over the energy consumption limits.

EPA Response: Craig Hershberg reiterated the test method protocol, which consists of averaging energy consumption over a manufacturer-determined time segment.

Power Consumption Testing Methods:

Drafts of the ENERGY STAR Set-top box Program Testing Guidelines were distributed to all attendees with the meeting materials. EPA encourages manufacturers to review the Testing Guidelines and e-mail any comments directly to Craig Hershberg at hershberg.craig@epa.gov.

Program Development Time Line:

Issue: Industry representatives feel EPA's proposed time line is too aggressive. A proposal for an alternative time line was not presented.

Bill Check, NCTA, shared his concerns that the Version 2.0 energy-efficiency criteria would not be reasonably attainable over a short period of time.

Joe Peck, CEA, recommended that, rather than addressing how to stretch the timeline to accommodate these products, the meeting participants should discuss what specifications could be met in a certain time frame.

David Kline, JVC, defined the traditional consumer electronics product development cycle to emphasize the importance of timing the program launch and product release to complement this cycle. According to Mr. Kline, the consumer electronics development cycle typically lasts 12-18 months while the PC design process typically requires 3-6 months.

EPA Response: EPA proposed effective dates of May 2000 (to coincide with Cable 2000) and January 2001 (to coincide with 2001 International Consumer Electronics Show) for Category 1 products and both Category 2 and 3 products, respectively. EPA emphasized its interest in providing incentives and encouragement for manufacturers to integrate energy-efficiency considerations into the development or redesign of products. EPA also mentioned the possibility of designing a tiered specification to build long-term incentives and capabilities into the Program.

David Traver, Sony, hesitated to agree to have a compliant product by a certain date as interactivity and functionality are constantly evolving and being integrated into new products.

Mr. Traver also stated that the Program has encouraged engineers to consider energy-efficiency in set-top boxes and that someone could possibly engineer a 15-Watt, Category 2 or 3 product by January 2001.

Peter Knight, Thomson, stated that products for release in January 2001 have already been designed. To achieve energy-efficiency improvements in these products, additional design changes would be necessary.

Mark Sharp noted that the January 2001 effective date for Category 2 and 3 products might be too soon.

Peter Knight and David Traver expressed doubt that anyone will meet the Category 2 and 3 specification in the near-term but suggested that some manufacturers' products might meet the Category 1 specification.

Issue: Several manufacturers questioned whether EPA recognizes and accepts the possibility that some product categories may not necessarily have representative compliant products at the time of the launch. Along these lines, Wayne Myrick, Sharp, inquired if EPA were planning to have a specific percentage of compliant products by the effective dates, as EPA has in other programs.

EPA Response: Craig Hershberg and Andrew Fanara responded that EPA's goal is to save energy and prevent air pollution by encouraging product innovation and design improvements. EPA stated that it would be willing to establish a specification that no one could meet immediately as long as it was fair and attainable within one or two design cycles.

<u>Launch Venues</u>

Issue: EPA proposed a launch at this May's Cable 2000 or at the 2001 International Consumer Electronics Show (CES). EPA also requested suggestions from industry regarding other potential launch venues.

Industry Response: It was suggested that EPA might consider launching at other venues, such as the Cable Tech festival on June 5-8. Joe Peck, CEA, also offered to provide EPA with a list of appropriate trade venues for a launch.

Improvements in Energy-Efficiency:

Industry noted that, although set-top boxes may need significant re-engineering to achieve the ENERGY STAR label, the current design process is not ignorant of energy-efficiency issues. In the products' and circuits' designs, fans and heat sinks are used to dissipate heat.

Steve Bristow, an independent consultant to EPA, stated that as more functionality is crowded into a set-top box's fixed space, heat buildup increasingly becomes a more important issue.

Additional Set-top Box Components, Peripherals, and Functionality:
Marc Mueller, Toshiba, suggested consideration of broadcasters' future plans (4 to 5 years from now) to introduce network cards for set-top boxes.

On a separate note, Andrew Fanara, EPA, suggested coordination with home networking associations, when possible.

ENERGY STAR Home Electronics Program Issues:

Issue: Some manufacturers expressed concern that the TV specification (3 Watts in standby) may become increasingly difficult to meet given TVs' increasing requirements for more memory, software, and microprocessors.

EPA Response: Following the finalization of the set-top box specification, EPA will begin discussions with industry regarding the TV/VCR specification. At that time, EPA and industry will discuss in greater detail the energy-efficiency specifications for TVs, with consideration given to TVs' increasing functionality.